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A NEW SPECIES OF *XESTOPHANES* FÖRSTER (HYMENOPTERA: CYNIPIDAE) FROM AZERBAIJAN

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Abstract.—A new species of cynipid gall wasp, ***Xestophanes caspiana,*** is described from the Caspian Azerbaijan in western Asia. It differs from the two previously known species of the genus in having 12 antennal flagellomeres. The discovery of the new species indicates a much broader distribution for *Xestophanes*, which was previously known only from western Europe.

Key Words: new species, gall wasps, *Xestophanes*, Cynipidae, Aylacini, western Asia

The genus *Xestophanes* Förster, 1869 is of special interest to studies on the evolution of cynipid gall wasps. The genus and *Diastrophus* Hartig (the genus *Gonaspis* Ashmead has recently been synonymized with *Diastrophus* (Schick et al. 2003)) constitute a morphologically unique group within the cynipid tribe Aylacini. They differ from all other aylacine members in having 1) claws with a distinct basal lobe or tooth and 2) mesopleuron, mesoscutum, and vertex smooth and shining. Biologically, these two genera also differ from other aylacines in that they induce galls on host plants belonging to the family Rosaceae (the two known *Xestophanes* species are associated with the plant genus *Potentilla*, and species of *Diastrophus* make galls on *Rubus* and *Potentilla* (Nieves-Aldrey 1994)), in contrast to the other aylacine genera making galls on host plants of more advanced plant families, such as Apiaceae, Asteraceae, Lamiaceae, Papaveraceae, Rubiaceae, and Valerianaceae (Ronquist and Liljeblad 2001). According to recent phylogenetic studies, *Xestophanes* and the inquiline tribe Synergini are sister groups and they together with *Diastrophus* form a monophyletic clade deeply nested within the Cynipidae phylogenetic tree (Ronquist 1994, Liljeblad and Ronquist 1998).

Xestophanes comprises two known species, *X. bravitarsis* (Thomson) and *X. potentillae* (Retzius), and was previously known only from western Europe (Nieves-Aldrey 2001). Here I describe a new species from Chatshmas, Azerbaijan, in western Asia.

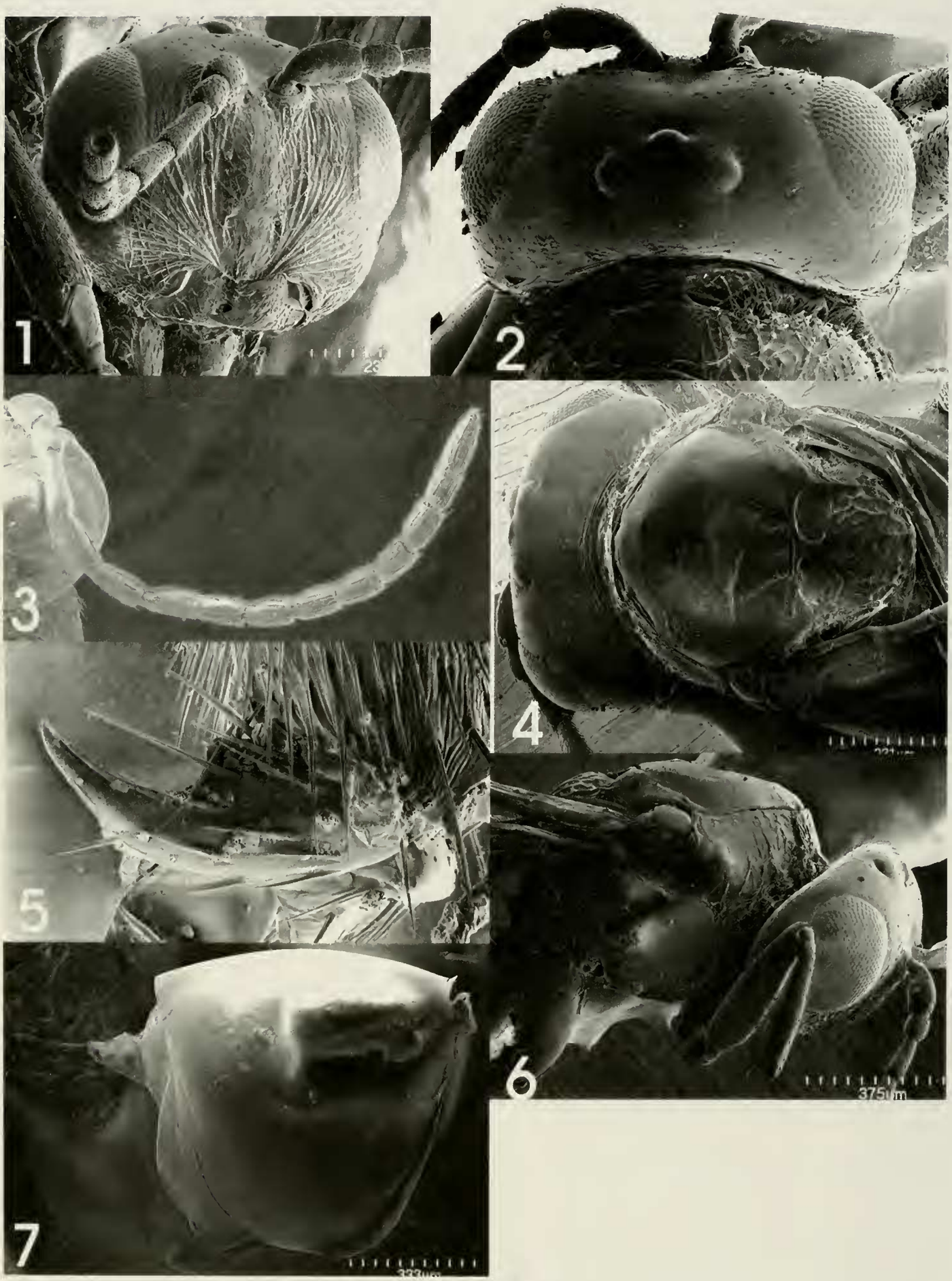
METHODS AND MATERIALS

The type specimen was loaned from the Cynipidae collection at the American Museum of Natural History, New York, NY (AMNH). SEM images were taken from uncoated specimen with a Hitachi S4700 Field Emission Scanning Electron Microscope (FE-SEM) at AMNH. Structural terminology follows Ronquist and Nordlander (1989) and Ronquist (1995), and sculptural terminology follows Harris (1979).

Xestophanes caspiana Liu, new species

(Figs. 1–7)

Description.—Female: Body length, measured from anterior margin of head to



Figs. 1–7. *Xestophanes caspiana*, female. 1, Head, anterior view. 2, Head, dorsal view. 3, Antenna. 4, Mesonotum. 5, Metatibia. 6, Head and mesosoma, lateral view. 7, Metasoma.

posterior margin of eighth metasomal tergum: 2.3 mm. Length of forewing: 2.0 mm. Head and mesosoma brown, legs and metasoma bright brown.

Head: Anterior view (Fig. 1). Lower face glabrous and not keeled medially; facial strigae present laterally, radiating from clypeus and reaching to compound eyes and lower margin of antennal sockets. Head in anterior view broader than high; lateral margin of gena smoothly rounded, height of malar space about half height of compound eye. Clypeus trapezoid. Ventral margin of clypeus broadly rounded, slightly projecting from cranial margin. Anterior tentorial pits small and distinct. Epistomal sulcus and clypeo-pleurostomal lines weak and barely detectable. Antennal sockets situated slightly above middle of compound eye; distance between antennal rim and compound eye twice as broad as distance between inner rims of antennal socket. Gena not expanded behind eyes (Fig. 1–2, 4). Dorsal view (Fig. 2). Upper face (see also Fig. 1) and vertex glabrous; median frontal carina and lateral frontal carinae absent. Ocellar plate not raised. Occiput (see Fig. 4) transversely wrinkled. Antenna (Fig. 3) with flagellum with 12 connate articles. Length of first flagellomere (F1)1.1 times length of second (F2). F3 2.2 times as long as broad. Ultimate flagellomere 1.6 times as long as penultimate. Elongate placodeal sensilla present on all flagellomeres except F1.

Pronotum (Figs. 2, 4, 6): Medially long (high), ratio of median distance between anterior and posterior margins to lateral distance between these margins 0.45 (Fig. 6). Lateral pronotal carinae more or less distinct, meeting posteroventral pronotal margin. Submedian pronotal depressions oval, small and shallow, open laterally, connected by a shallow groove medially (Fig. 1). Posterior pronotal plate distinctly marked by depressed pronotal surface behind (Fig. 6). Dorsal pronotal area slightly visible laterally (Fig. 4). Lateral surface of pronotum mostly glabrous, shining, and without hair (Fig. 6).

Mesosoma (Fig. 4, 6): Scutum glabrous and shining. Median mesoscutal impression barely present, only weakly impressed posteriorly. Notauli present only in posterior one third, narrow, shallow, and strongly divergent anteriorly. Scutellar foveae shallow and closed posteriorly. Dorsal surface of scutellum rugulose. Posterior margin of scutellum smoothly rounded. Mesopectus (mesopleuron including subpleuron and sternum) (Fig. 6). Mesopleuron mostly glabrous and shining, except with sparse pubescence in ventral longitudinal impression. Middle part of mesopleuron without horizontal impression or carinae. Mesopleural triangle distinctly impressed, ventral margin clearly marked.

Metanotum: Metapectal–propodeal complex (Fig. 6). Metapleural sulcus meeting anterior margin of metapectal–propodeal complex at about three-quarters height of latter. Metepimeron subrectangular, relatively large. Lateral propodeal carinae subparallel, narrow, not flattened above, slightly higher anteriorly. Nucha short, 2.7 times as broad as long, longitudinally carinate, posterior margin slightly incised medially.

Legs: Procoxa with a weak, but distinct anterolateral crest. Metacoxa elongate. Longitudinal carina absent on posterior surface of metatibia. Claws with a distinct basal lobe.

Forewing: Clear. Marginal cell open in distal two thirds along anterior margin. Rs+M arising from middle of basal vein. Bulla in R1+Sc distinctly present. Areolet triangular and small. Hair fringe along apical margin short.

Metasoma (Fig. 7): Petiolar tergum shining smooth and reduced to a small lobular structure above petiolar articulate. Postpetiolar metasoma laterally compressed, in lateral view as high as long, lenticular. Metasomal terga 3–4 fused to form a large syntergum covering almost entire metasoma; fusion between tergum 3 and 4 vaguely detectable across middle of syntergum. Ter-

gite 5–8 mostly covered by syntergum, being exposed only posteroventral to syntergum. Syntergum with a few hairs close to base in the middle, otherwise nude. Exposed part of terga 7–8 distinctly and densely micropunctate. Eighth tergum also with a dorsal row of fine hairs. Ventral spine of hypopygium not projecting, united almost to apex with lateral flaps. Hypopygium ventrally with sparse pubescence toward apex.

Male: Unknown.

Type material.—Holotype ♀, Chatshmas, Transac., Azerbaijan, 1935-V-28, collected by Lubischew (AMNH). The specimen was remounted on a retangular cardboard stage; metasoma and the old small triangular stage with leg parts in glue are mounted separately on the new stage.

Diagnosis.—The new species can be easily separated from the two known species by the number of antennal flagellomeres: *X. caspiana* has 12 flagellomeres whereas both *X. potentillae* and *X. bravitarsis* have only 11 flagellomeres. In addition, the new species has the notauli strongly divergent anteriorly and the syntergum covering the entire post-petiolar metasoma (thus no other tergum than syntergum is seen from above).

Biology.—Unknown. The two known species of *Xestophanes* induce galls on *Potentilla*. It is likely that the new species is also associated with *Potentilla*.

Distribution.—Chatshmas, Azerbaijan.

Taxonomical Notes

Although *Xestophanes* can be easily distinguished from *Diastrophus* by a number of features, including 1) weak tooth on tarsal claws, 2) subcosta and radius reaching to anterior margin of wing and radial cell sometimes partly closed, and 3) abdominal terga 3 and 4 fused, it can be difficult to separate it from the Synergini, particularly from *Synophromorpha* Ashmead, which live in *Diastrophus* galls on *Rubus* (Rosaceae). Liljeblad and Ronquist (1998) found 13 synapomorphic characters for the Synergini. Although these characters are phylogeny-informative, they are of limited practical use in distinguishing *Xestophanes* from Synergini. It is difficult to create a taxonomical key to separate *Xestophanes* from all synergine genera. In practice, it is easier to separate *Xestophanes* and *Synophromorpha* from other synergine genera than separating *Xestophanes* from all synergine genera including *Synophromorpha*: both genera have a smooth and shining vertex, pronotum, mesoscutum and mesopleuron (those of all other synergine genera are either sculptured or coriarious). *Xestophanes* can be separated from *Synophromorpha* by the number of antennal flagellomeres: *Xestophanes* species have either 11 or 12 flagellomeres, whereas all known *Synophromorpha* species have only 10 flagellomeres. Host association data certainly will assist the separation *Xestophanes* from *Synophromorpha*, which are inquilines exploiting galls induced by *Diastrophus* species on *Rubus* host plants.

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